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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,120	07/23/2003	Takeo Eguchi	075834.00418	8792

7590 12/02/2004

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EXAMINER

FRANK, RODNEY T

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/625,120

Applicant(s)

EGUCHI ET AL.

Examiner

Rodney T. Frank

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-11 and 14-18 is/are rejected.
- 7) ☒ Claim(s) 8,12 and 13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 21/1/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Double Patenting

1. Applicant is advised that should claim 1 be found allowable, claim 2 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).
2. Applicant is advised that should claim 14 be found allowable, claim 15 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5, 6, 9-11, 14-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dahl et al. (U.S. Patent Number 4,284,951; hereinafter referred to as Dahl). Dahl discloses an apparatus for indicating the level of the electrolyte in a battery cell. A three-electrode sensor probe having the electrodes partially embedded in an electrically insulating housing suspended in the electrolyte so that a portion of the probe is immersed in the electrolyte.

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The electrolyte provides the only conduction path between the electrodes so that the resistance between the electrodes varies according to the level of the electrolyte. An AC or pulsed DC sensing signal is applied between two of the electrodes and an output signal related to the level of the electrolyte is produced. A polarizing current is applied to the other electrode to prevent the buildup of surface contamination on the two sensing electrodes due to the sensing signal (Please see the abstract).

In regard to claims 1 or 2, Dahl discloses and shows in figure 1 a liquid/liquid -amount detecting circuit comprising an electrode unit (10) disposed in contact with the liquid in the container, the electrodes connected to each other when in contact with the liquid (see column 2 lines 60-68), a source impedance (28), an AC signal source (32), wherein the liquid detecting circuit inputs an AC signal devoid of a DC component (see the abstract), whereby an output signal is produced. Though a binary output is not explicitly disclosed, this is seen as a mere design choice that would be well within the preview of one of ordinary skill in the art since there is no disclosed improvement gained by the binary output nor is there any unexpected result from said binary output. Further, though no specific determining means is disclosed, it would be obvious to one of ordinary skill in the art to provide one since it would be necessary in order for the device to be useful.

In reference to claim 3, the output signal represents the presence or absence of liquid.

In reference to claim 5, though there are not a plurality of electrode units disclosed by Dahl, it would be a mere design choice well within the preview of one of ordinary skill in the art to operate any number of similar probe sets in view of the prior art of record.

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In reference to claim 6, though the exact configuration of the sensor as claimed in claim 6 is not explicitly disclosed, the examiner sees this as a mere design choice well within the preview of one of ordinary skill in the art at the time of the invention.

In reference to claim 9, it is disclosed the electrodes are disposed inside the container while the other circuitry is outside since the top (22) is to fit into a servicing cap of the container to suspend the probe inside.

In reference to claim 10, though not explicitly disclosed, it would be obvious to one of ordinary skill in the art to have the impedance characteristics common if multiple probes are used such that calibration and results can be considered accurate.

In reference to claim 11, Dahl discloses that the current source is a polarizing current source, thus creating at least one positive and one negative AC signal.

In reference to claims 14-16 and 18, though the exact specifics of the method are not explicitly disclosed the examiner feels that since apparatus is disclosed, then the examiner feels that the method for operating the apparatus is also disclosed as well.

5. Claims 1-7 and 9-11, and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanders (U.S. Patent 6,650,128). Sanders discloses a fault detection circuit in a boiler-water level system includes a dual-frequency signal generator, which develops two AC components with no associated DC component. The two frequencies are mixed and sent through an impedance matching circuit to match the impedance of the signal generating portion of the system with the impedance of the boiler water under measurement. The impedance-matched signal is then directed to two legs, one leg directed through one of a plurality of electrode probes and then to a first filter circuit, and the other leg is directed a second set of filters. In combination, the filters

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pass either the higher or the lower of the two frequencies to determine an open or short condition in the level sensing circuitry, as well as a steam vs. water condition (Please see the abstract).

In regard to claims 1 or 2, Sanders discloses and shows in figure 1 a liquid/liquid -amount detecting circuit comprising an electrode unit (14) disposed in contact with the liquid in the container, the electrodes connected to each other when in contact with the liquid, a source impedance (20), an AC signal source (12), wherein the liquid detecting circuit inputs an AC signal devoid of a DC component (see column 4, 46-52), whereby an output signal is produced. Though a binary output is not explicitly disclosed, this is seen as a mere design choice that would be well within the preview of one of ordinary skill in the art since there is no disclosed improvement gained by the binary output nor is there any unexpected result from said binary output. Further, though no specific determining means is disclosed, it would be obvious to one of ordinary skill in the art to provide one since it would be necessary in order for the device to be useful.

In reference to claim 3, the output signal represents the presence or absence of liquid.

In reference to claims 4 and 7, since the device is disclosed to generate a sine wave , then it would be obvious that some sort of clock could also be implemented along with the function generator.

In reference to claim 5, though there are not a plurality of electrode units disclosed by Sanders, it would be a mere design choice well within the preview of one of ordinary skill in the art to operate any number of similar probe sets in view of the prior art of record.

In reference to claim 6, though the exact configuration of the sensor as claimed in claim 6 is not explicitly disclosed, the examiner sees this as a mere design choice well within the preview of one of ordinary skill in the art at the time of the invention.

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In reference to claim 9, though it is not specifically disclosed that the electrodes are disposed inside the container while the other circuitry is outside, this is a very common and well known arrangement for this type of circuitry and this would therefore be an obvious choice for one of ordinary skill in the art.

In reference to claim 10, though not explicitly disclosed, it would be obvious to one of ordinary skill in the art to have the impedance characteristics common if multiple probes are used such that calibration and results can be considered accurate.

In reference to claim 11, Sanders discloses the use of both positive and negative rectifier signals.

In reference to claims 14-18, though the exact specifics of the method are not explicitly disclosed the examiner feels that since apparatus is disclosed, then the examiner feels that the method for operating the apparatus is also disclosed as well.

Allowable Subject Matter

6. Claims 8, 12, and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney T. Frank whose telephone number is (571) 272-2193. The examiner can normally be reached on M-F 9am -5:30p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RTF

November 26, 2004



HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800